REMARKS

The specification has been amended to recite the SEQ ID Numbers for the nuclceic acid sequence of Genbank Accession No. X69822 and the amino acid sequence encoded thereby.

Claims 1, 2, 7 and 18 have also been amended to obviate the 35 U.S.C. §112, second paragraph rejection set forth in the present Official Action.

All of the foregoing amendments are presented to further clarify the scope of the invention and in no way represent acquiescence to the rejections made by the Emaminer.

The April 11, 2003 Official Action and references cited therein have been carefully reviewed. In light of the amendments presented herewith and the following remarks, favorable reconsideration and allowance of the application are respectfully requested.

At the outset, the Examiner indicates at page 7 that claims 12, 16-18, 20-22, 29, and 30 are deemed free of the prior art. Notably, claim 2 has been rejected under 35 U.S.C. 5112, second paragraph only. Accordingly, Applicants assume that claim 2 is also free of the prior art.

At page 3 of the Official Action, the Examiner maintains the rejection of claims 17 and 30 under 35 U.S.C. §112, first paragraph as allegedly containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicants again reiterate that the INRA clone of claims 17 and 30 is readily available to the public and further that this particular clone is not essential to the practice of the instant invention. Attached hereinwith, please find two references where clone INRa 717 1-B4 was used, Siebrecht et al. Journal of experimental Botany 1999;50(341):1797-1806 and Lapierre et al. Plant Physiology 1999;119:153-163. However,

in order to advance prosecution, these claims are cancelled in accordance with the present amendment.

At page 3, the Examiner indicates that claims 2, 7-12, 16-18, 20-22, and 29-30 remain rejected under 35 U.S.C. §112, second paragraph, for the reasons set forth in the Official Action of July 8, 2002. However, it is noted that the Examiner has stated that the previous rejection of claims 7, 12-27, 31, and 40 under 35 U.S.C. §112, second paragraph, has been withdrawn in view of Applicant's amendments. While the current Official Action provides a basis for the rejection of claims 2, 7, 11, 12, 18, 19, and 21 under 35 U.S.C. §112, second paragraph, the Action is silent regarding the grounds for the assertion that claims 8, 9, 10, 16, 17, 20, 22, 29, and 30 are lacking in clarity. Clarification is respectfully requested.

The Examiner has rejected claims 1 and 7 under 35 U.S.C. §102(e) as allegedly being anticipated by US Patent 5,955,651 to Corruzzi et al.

Claims 1 and 7-11 are rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Coruzzi et al. (U.S. Patent No. 5,955,651) in view of Canton F. et al. (Plant Molecular Biology, 1993, Vol. 22, pp.819-822) and Applicant's admission.

The foregoing constitutes the entirety of the objections and rejections raised in the April 11, 2003 Official Action. In light of the present amendments and the following remarks, each of the above-noted rejections under 35 U.S.C. §§ 112, first and second paragraphs, 102(e), and 103(a) is respectfully traversed.

SEQUENCE LISTING

A paper copy of the amended sequence listing in compliance with 37 C.F.R. §§1.821-1.825 is being submitted herewith providing sequence information for the nuclceic acid sequence of Genbank Accession No. X69822 and the amino acid

sequence of the protein encoded thereby. Both the nucleic acid and amino acid sequences were provided when the skilled person accessed GenBank Accession number X69822 at the time the application was filed. Accordingly, Applicants submit that the provision of the nucleic acid and amino acid sequences in the attached sequence listing does not introduce new matter into the application. This statement provides the requisite evidence to support entry of the sequence into the application (see MPEP 608.01(p), which discusses the incorporation of essential material into the specification).

The sequence listing is being submitted in both paper copy and computer readable form under a separate cover in order to facilitate entry of the same into the application. Entry of the sequence listing is respectfully requested.

CLAIMS 2, 7, 11, 12, 18, AND 21 AS AMENDED FULLY COMPLY WITH THE DEFINITIVENESS REQUIREMENT OF U.S.C. §112, SECOND PARAGRAPH

It is the Examiner's position that the phrase "Genbank Accession No. X69822" renders claims 2 and 7 indefinite. Applicants disagree with the Examiner's assertion. However, in order to expedite prosecution, claims 2 and 7 have been amended to replace the phrase "Genbank Accession No. X69822" with "SEO ID NO: 3". The cancellation of the b) clause from claim 7 renders the Examiner's rejection of this claim moot. The substitute sequence listing submitted herewith designates the nucleic acid provided in Genbank Accession No. X69822, as SEQ ID NO: 3. The amino acid sequence encoded thereby is designated as SEQ ID NO: 4. It is respectfully requested that the amendments to the specification inserting these sequence identifiers where appropriate be entered in the aboveidentified application.

The Examiner further rejects claim 7 asserting that the phrase "encodes a protein having enzymatic function" renders

the metes and bounds of the claim unclear. Claim 7 has been amended to recite that the sequence "encodes a protein having glutamate synthetase activity", which is clear and definite.

Applicants have also followed the Examiner's helpful suggestion made the following claim amendments: 1) The "the" has been replaced with an "a" in claim 11; 2) "said plant" has been replaced with "a plant" in claim 12; and 3) claim 18 has been amended to recite "wherein the transforming is by Agrobacterium tumefaciens mediated transformation".

The Examiner also asserts that claim 19 is improperly dependent. Inasmuch as claim 19 was canceled in the previous response, this rejection of claim 19 is moot.

Additionally, the Examiner maintains the rejection of claim 21 asserting that the phrase "a reproductive unit" is indefinite. Applicants hereby reiterate the position that "a reproductive unit" is clear and definite to those skilled in the art of plant biology. See U.S. Patent Nos. 5,861,542 and 6,194,167. In the '542 patent, a "reproductive unit" of a plant was defined as "any totipotent part or tissue of the plant from which one can obtain a progeny of the plant, including, for example, seeds, cuttings, buds, bulbs, somatic embryos, etc." In the '167 patent, the term "a reproductive unit" of a plant was similarly defined as "any totipotent part or tissue of the plant from which one can obtain a progeny of the plant, including, for example, seeds, cuttings, tubers, buds, bulbs, somatic embryos, cultured cells (e.g., callus or suspension cultures), etc." It is a well settled premise in patent law that "a patent need not teach, and preferably omits, what is well known in the art." Lindemann Maschinenfabrik v. American Hoist and Derrick, 221 USPQ 481, 489 (Fed. Cir. 1984). The skilled person readily appreciates that the phrase encompasses any unit from a plant from which progeny may be obtained. In light of all the foregoing, it is clear that the metes and bounds of the phrase "reproductive unit" are clear to those skilled the relevant art.

In view of the forgoing remarks and the claim amendments, it is respectfully submitted that claims 2, 7, 11, 12, 18, and 21 as amended fully comply with the requirements set forth in 35 U.S.C. §112, second paragraph. Accordingly, withdrawal of the above-mentioned rejections is respectfully requested.

CLAIMS 1 AND 7 AS AMENDED ARE NOT ANTICIPATED BY CORUZZI ET AL.

The Examiner asserts that because Coruzzi et al. teach plant expression cassettes Z3 and Z17 comprising the pBIN vector with a 35S promoter operably linked to a pea glutamine synthetase (GS) cDNA having at least 70% sequence identity for both the protein and nucleic acid sequences provided in GenBank Accession number X69822, and a NOS terminator, this reference anticipates the subject matter of claims 1 and 7.

Applicants respectfully submit that claim 1 as amended is directed to plant expression cassettes comprising a GS coding sequence from gymnosperm. The GS used in the vectors of Coruzzi et al. is from pea, an angiosperm. Claim 7 has been amended to include a reference to SEQ ID NO: 3 which is isolated from gymnosperm. Inasmuch as Coruzzi et al. do not identically disclose each and every feature of the claims as amended, Applicants respectfully submit that the §102(e) rejection of claim 1 and 7 is improper and should be withdrawn.

AMENDED CLAIMS 1 AND 7-11 ARE NOT UNPATENTABLE OVER CORUZZI ET AL. IN VIEW OF CANTON ET AL. AND APPLICANT'S ADDMISSION

At page 7 of the Official Action, the Examiner states that "[i]t would have been prima facie obvious at the time of Applicant's invention to modify the expression cassette and Agrobacterium vector of Coruzzi to substitute the cDNA

encoding glutamine synthetase from Pinus sylvestris as taught by Canton for the nucleic acid from pea because the two nucleic acids are functionally equivalent in that they both encode glutamine synthetase". The Examiner further asserts that "[i]t would have been obvious to substitute one functional equivalent for another".

Applicants respectfully submit that the foregoing assertion is erroneous on its face.

It is well known in the art that GS from angiosperm and gymnosperm plants are biochemically and functionally distinct in their regulation and expression patterns. In angiosperm plants, e.g., pea, there are two major forms of GS: a cytosolic form expressed in roots and vascular tissues, such as GS1, and a plastid form expressed in photosynthetic tissues, such as GS2. In gymnosperm plants, e.g., pine, several GS1 genes have been characterized, but GS2, the plastid form observed in angiosperm plants, does not exist. Further GS1a from pine has features quite distinct from GS1 of angiosperm plants. For example, GS1a from pine is expressed in photosynthetic tissues and its expression is correlated with plastid development (Canovas et al., Planta 1991;185:372-378; Canton et al., Plant Mol. Biol. 1993;22:819-828; and Garcia-Gutierrez et al., Plant J. 1998;13:187-199). Neither of these features of pine GS1a is shared with other GS1 enzymes from angiosperm species, such as pea. Therefore, the GS enzymes from gymnosperm plants are not functionally equivalent to those from angiosperm plants, e.g., pea. Accordingly, claim 1 which is directed to a vector comprising a GS coding sequence from gymnosperm plants is not rendered obvious by the disclosure in Coruzzi et al., in view of Canton et al. and applicant's remarks.

Moreover, claim 7 has been amended to recite a glutamine synthetase coding sequence having the sequence of GenBank Sequence X69822, or a glutamine synthetase coding sequence

that is at least 70% identical to GenBank Sequence M69822, or a glutamine synthetase coding sequence that hybridizes to GenBank Sequence X69822 at moderate stringency. It is submitted that the pea GS coding sequence used in Coruzzi et al., GS1A (GenBank Accession No. M20663) and GS3A (GenBank Accession No. $\rm X04763)$ share only a 50.2% and a 61.9% similarity with GenBank Sequence X69822, respectively (See the nucleic acid sequence alignment attached hereto Exhibits A and в).

As mentioned above, the angiosperm or pea GS enzyme encoded by the vectors of Coruzzi et al. is NOT functionally equivalent to the gymnosperm or pine GS enzyme encoded by the sequences disclosed by Canton et al. It would, therefore, $\underline{\text{NOT}}$ have been obvious to substitute the pea GS coding sequence in the vectors of Coruzzi et al. with the pine GS coding sequence in Canton et al.

To establish a prima facie case of obviousness, three basic criteria must be met: (1) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings; (2) there must be a reasonable expectation of success; and (3) the prior art reference (or references when combined) must teach or suggest all the claimed limitations (MPEP §2143). In the instant case, because the GS coding sequences disclosed by Coruzzi et al. and by Canton et al. are NOT functionally equivalent, there would have been NO motivation for one of ordinary skill in the art to combine the two references and to replace the pea GS coding sequence in Coruzzi et al. with the pine GS coding sequence in Canton et al. Further, no success would have been expected by one of ordinary skilled to combine the disclosure of Coruzzi et al. and Canton et al. Accordingly, the Examiner has failed to establish a prima facie case of obviousness.

Moreover, in in re Papesch, 315 F.2d 381, 137 USPQ 43 (CCPA 1963) and Ex parte Thumm, 132 USPQ 66 (Bd. App. 1961), the court has established that the presence of a property not possessed by the prior art is evidence of nonobviousness. the instant case, the claimed expression vectors comprise gymnosperm or pine GS coding sequences. These expression vectors possess properties not possessed by the expression vectors of Coruzzi et al., which comprise pea GS coding sequences. Specifically, as disclosed in the paragraphs begin at page 13, line 21, end at page 14, line 37 of the present application, when the instantly claimed vectors are transferred into angiosperm plants, the gymnosperm GS1 transcripts are correctly processed by the angiosperm translational machinery and the pine GS1 polypeptide is detectable both in leaf regions enriched in photosynthetic cells and in vascular elements. This unusual accumulation of the pine GS1 in photosynthetic tissues could not have been predicted from the normal accumulation of the endogenous angiosperm enzyme in vascular tissue only. Further, Coruzzi et al. have disclosed that when the expression vectors containing angiosperm GS coding sequences, GS3A or GS1A, are transferred into Nicotiana tabacum line SR1, only 6/13 or 5/8, respectively, of the transgenic plants demonstrate overexpression of GS activity (See column 26, lines 19-65 and column 27, lines 25-40 of Coruzzi). However, the transformation efficiency of the presently claimed vectors is unexpectedly higher, nearly 100%.

In summary, the requirements to establish a prima facie case of obviousness have not been met. Neither the cited references or the knowledge available to those skilled in the art teach or suggest any motivation to combine the teachings of Coruzzi et al. and Canton et al. Moreover, neither the references or the knowledge available to those skilled in the art provide any reasonable expectation of success in

substituting the pea GS coding sequences in the vectors of Coruzzi et al. with the pine GS coding sequences in Canton et al. Finally, the vectors of the present application possess unexpected properties over those disclosed in the prior art in that the present vectors possess higher transformation efficiency and that the transgenic plants containing the same have pine GS polypeptides present in photosynthetic cells. Accordingly, Applicants respectfully submit that the rejection of claims 1 and 7-11 under 35 U.S.C. §103(a) is untenable and should be withdrawn.

CONCLUSION

In view of the amendments and remarks presented herein, it is respectfully urged that the rejections set forth in the April 11, 2003 Official Action be withdrawn and that this application be passed to issue. In the event the Examiner is not persuaded as to the allowability of any claim, and it appears that any outstanding issues may be resolved through a telephone interview, the Examiner is requested to telephone the undersigned attorney at the phone number given below.

Respectfully submitted,

DANN, DORFMAN, HERRELL AND SKILLMAN A Professional Corporation

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Enclosures: Exhibits A and B and references describing INRA

Clone

EXHIBIT A

DNA Alignment of GS1a from P. sylvestris (GenBank Accession No. 69822) with GS1A from P. sativum (GenBank Accession No. M20663)

Sea1(1>1423)	nalty: 1.10; Gap Length Penalty: 0.33 Seq2(1>1434) Similarity GS1 P. sativum M20663 Index	Gap Number	Gap Length	Consensus Length
	(44>1429) 50.2	177 -	181	1645
GSla P. Bylvestris GSl P. sativum M20661	THE THE TENT	V30 V40 CA C A CA C A 30	T CAGA T CAGA	. CT C:
ÖSla P. bylvestris GSI P. sarivum M28661	V7C V80 AACCTTGA C CT AG GA AC A	GAGAA TCAT GC	AGA TA ATA	-t - TGGATTO
g31a P. Jolkestris G71 P. sativum M20661	V120 7130 7240 G GG TE GG TEGA T TE G GT	AAAGC AG A CTC NAAGC AG A CTC	TT TO GGAC	C GT A T C GT A
GAla P. Sylvestris GAl P. savirum M2066	V1?) V190 T G C TT A GAGOT CCCAA TGGAA	A TATION AGG TOOM 	GCAC GBACA 	. gere . II. . gere
GSla P. bylvestris GSl P. satirum M20661	7230 724) 7250 GGADA GA AG GRAGT AT CT TAT 0 1111 1 111 1 111 3 GGADA GA AG GRAGT AT CT TAD 0 1230 1230	TO ACAAGO AT UL - TO ACAAGO ATUTI	G GATCC 1 G GATCC	ATT C ATT C
381a P. Bylvestris 381 P. skiirum M2066	AGA GG AA C CAT T TTGGT AT	TGTGATGC TAC		GAC C GAC C
OSia P. sylvestris	V34J V350 V350 ATTCC C C AA:AA AG C 3CA:	O GC AA TTTTT 		v390 d G Gd 1 2 G Gr - 436
GSIa P. sylvestris GSI P. sativam M2066	V400 V410 T GT G TGAAGA ACATGATA GG T 	T A A CA GAAFA T A A CA GAAFA	A AC CT GPT	III III CGCA AAA
	v450 v460 v470 G AC TCAA TGGCITCTTGG T33CCA	TEGTGG TA CC	GG CCTCAGC	G CCATA
	V510 TTA 0 TGT GG A G T 	r gg g c	īG	WESTS ACAA ACAA
STA P. sylvestris		v560 +57 GGC	i vesi Ati ca	l Heel A SA

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gsi F. sandvum M2-663 AGCCTG C TT TT TGCC GGC AT TA A TA
                                  -625
                         v655 v610 v620 v630 v645
                  T CAGTEG ATCAATGGAGAAGTCATGCC GG CA TGGGAATFTCAAGT GGTCC TC
GSla P. sy.vestris
"9ST P. BATTYER MEDICAL TO CASTEG ATCAATGAGAGAGTCATGCC GG CA TGGCAATTTUAAGT GGTEC TC
                        1646 1656 1669 1670
                                                     1090 1090
                  V650 V670 V680 V690 V795
AGT GGTATCTC GC G GATGAG I 763 GT GCTCG T ATT TGGAGAGGAT A
GSla P. sy.vestris
GSI P. SALLVUM M20663 AGT GGTATCIC GO G GATGAG T TGG GT GCTCG T ATF TGGAGAGGAT A
                       v720 v730 v740
                                                     vr150
                   v710 v720 v730 v740 v750 v760 c ca g gc gergt erret t compres coc as coast age datted
GS1a P. sylvestris
                  GS1 P. sativam M20663
                                      v790
                                              √830 √810
                     v77: v780
                   AATGOTOCTGG TGC CACACAAA TATAGCACCAAGTC ATG G AAC A G) CG T
GS1a P. svivestris
GS1 P. Sativum M20663 AATGGTGCTGG TGC CACACAAA TACAGCACCAAGTC ATG G AAC A G: G3 T
                                                          < 36C
                    ^ 8 s in
                                       17850
                   ∨645
GSla P. sylvestris
GS1 P. sativum M20663
                      1870 1880 1890 1900
                                              v910
                                                     v320
                            v39(
                                     V900
                   v380
GS1a P. sylmestris
GS1 P. satirum M20663
                   1950
                                                   ^960
                                                       v980 v990
                                      v. 350
                                               v970
                               17950
                        940
                   GACAT AATACCTT TC TGGGGTTT BCAAA CGAGG GCTTC GTT G GT 3G 3G 3G 3G 3G 3ATACCTT TC TGGGGTTT BCAAA CGAGG GCTTC GTT G GT 3G 3G 3G 3ATACCTT TC TGGGGTTT BCAAA CGAGG GCTTC GTT G GT 3G 3G
(Sia P. s<sub>r</sub>l estris
GS1 P. satirum M20663
                     1980 1990 1000 1000 1000 1000
                        v1000 v1010 v1020 v1030
                                                        v1040 ::1050
                   GACACAGA AAAGAAGG AA GETTATTTGAGGAE A
 GS1a P. sylvestris
                   GACACAGA AAAGAAGG AA GGTTATTTTGAGGAC
 GS1 P. satirum M20663
                      11060 71070 v1080 v1090 v1100 11110
 GS1a P. sylvestris
 3S1 P. sati∕um M20663
                       v1120 v1130 v1140 v1150 v1160
                                                               GGAGGCCAGC TO T A
 GSla P. sylvestris
                                                     GGAGGCCAGC TO TA
 gsi P. ramivum M20663
                                                          11080
                          v1180 v1190 v1200 v1210
                                                              -√12. ⊕
                                             CCA TG TT AG AG T A C T
                    A C T A ATA GO TGT A T T
 GSla P. sylvestris
                    A C.T. A ATA GT TGT A T.T.
                                              CCA TG TT AG AG T A C T
 GS1 P. sativum M20663
                     V1230 V1240 V1250
CT T T G A ACC T AA CT
                                             TTG T C A AA AA TT T CT C
 GSla P. sylvestris
                                               TTG T C A AA AA TT T CT C
                     OT T T G A ACC T AA CT
 OSI P. Sativir Mi1863
                                                                 √131
                                                     v:1312
                                     711290
                          tr1250
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OSia P. sylvesmis	TTG TAC TG A A T A A T T TT TT TGT T TTG T T	C E
GSI P. satitud Miryles	CTG TAT TG A A T A A T T TT TS T GI T TT TS T GI T T TG T T T TS T GI T T TG T T T TS T GI T T TG T T T T TS T GI T T T TG T T T T T T T T T T T T T	å
USIA P. sylvestris USI P. sativum M20663	VIBE VIBE VIBE VIBE VIBE VIBE VIBE VIBE	T : : :23.
GS1a P. sylvestr:s GS1 P. sativum M20663	V1365 V1376 V1386 V1399 V1466 TT C C TTGT A T TAT T G CA AAT T A A TGT	C
GS1a P. sylvestris GS1 P. sativum M20663	^1350	10
GS1a P. sylvestris	V1410 V1420 TGAATATGA A T T T TGAATATGA A T T T	
331 1. 341 944 147 177	11410 11420	

EXHIBIT B

DNA Alignment of GS1a from P. sylvestris (GenBank Accession No. 69822) with GS3A from P. sativum (GenBank Accession No. X04763)

S1a P. sylvestris 93>1293) >1423)	Seq2(1>1373) X04763 GS3A	A P.sativum	Similarity Inde	Gap ex Numb	Gap er Len		sensus Length
•	(219>1206)		61.9	96	217	1153	
·	(27>1336)		58.4	96	217	1475	5
		4.0	6.4	v3 ů	v46	J2V	véú
		10	v20	V30	A40	V 2 0	1.5.5
	v90 v10	J					
Sla F. sylvestrís F C T - T T - TT	TC	AT G	AT C	AGA CT TC	A TT A CT	GA	ACAGA AAG T
rgc G						117. 11	11- 11-1-1
	1 7 11	1			3	HTTT I	
i , 1 , 1 ii l ii	18. 1						
4763 GS3A F.sativus T.C.T. T.T. TT		AT G	A T C	AGA CT TCA	AA TT A CT	GA	ACAGA AAG T
rge d	, ,						
. 30 0	430	140	156	160	179	180	^9B
13% "113	1020						
		7110	v120	v130	v140	v150	v160
170 v 180	v190 v20		VIZO	• 100			
as a summaria							G/4
SIA P. SYLVESCIIS TATATGG TTGG GGA	ATCAGG ATGA A	AT G AG	AAAGCCAG	CTCT CG	GACC, GTGAGT	C T A	A CTTCC AA 1
AACTA							L HIGH HILL
	11 711.1		1 1 11 1	1 11 1 1		1 1 1 1	
4763 GS3A P.sativur	~ "						
TA ATATOG TTGG GG	 ATCAGG AT GA A	AT G AG	AAAGCCAG	CTCT C G	GACC GTGAGT	с т А	A CTTCC AA T
AACTA					2156	^180	^190
	^130	140	^150	1 165	176	100	230
200 1210	1220						
	τ	7210	7225	v230	v246	v2:56	でたる 意
Sla P. sylvestris PA GC C AGGA A GA AG	!	ATATCCACA	AGCTAT TI	CC G GA CC	ATT C G AGA	GG AA A	HIIIVIII.
4763 GS3A P.sativu	אם כאאפת אתת	TATATCCA	CAAGCTAT	TTC G GA	CCATT C G A	GAGG AA A	
4763 GS3A P.sativu A CA 3C C AGGA A GA	AG GAAGT ATT	TATATCCA	CAAGCTAT				
4763 GS3A P.sativu CA 3C C AGGA A GA 310 - 1310	AG GAAGT ATT	TATATCCA	CAAGCTAT ^25				
A CA BE C AGGA A GA	AG GAAGT ATT ^230 ^320	TATATCCA ^240	^25	^26	0 ^270	^28	0 ^290
A CA BC C AGGA A GA	A3 GAAGT ATT	TATATCCA	^25	^26	0 ^270		
CA 30 C AGGA A GA 310 ^310 7266 V370	A3 GAAGT ATT	TATATCCA ^240 v31	^25 .0 vi	320 v	ე ^270 330	^28 v340	0 ^290
A CA 3C C AGGA A GA	A3 GAAGT ATT	TATATCCA ^240 v31	^25 .0 vi rgatg TAC	60 ^26 320 V C C CC A T	0 ^270 330 GG GA C C	v340 ATT CC C	.0 ^290 v350 : CAA CAAGAG
CA 3C C AGGA A GA FECO ^310 VEG V370 SSTA P. sylvestris MICC GC C AAAATT	A3 GAAGT ATT	TATATCCA ^240 v31	^25 .0 vi	60 ^26 320 V C C CC A T	0 ^270 330 GG GA C C	^28 v340	0 ^290 v350
CA 3C C AGGA A GA FECO **310 FECO **370 GS1a P. sylvestris ** ngc GC C AAAATT **	A3 GAAGT ATT	TATATCCA ^240 v31 T AT TGT	^25 .0 vi rgafg Tac	26 ^26 320 V C C CC A T	0 ^270 330 GG GA C C	^28 v340 ATT CC C	.0 ^290 v350 : CAA CAAGAG
CA 3C C AGGA A GA 2100 ^310 2160 v370 331a P. sylvestris 2 ngc Gc C AAAATT 1: 1 1	A3 GAAGT ATT	TATATCCA ^240 v31 T AT TGT I II III T AT TGT	^25	26 ^26	0 ^270 330 GG GA C C Li li li li GG GA C C	v340 ATT CC C	0 ^290 V350 : CAA CAAGAG
CA 3C C AGGA A GA FECO **310 FECO **370 GS1a P. sylvestris ** ngc GC C AAAATT **	A3 GAAGT ATT	TATATCCA ^240 v31 T AT TGT I II III T AT TGT	^25	26 ^26	0 ^270 330 GG GA C C Li li li li GG GA C C	v340 ATT CC C	0 ^290 V350 CAA CAAGAG
CA 3C C AGGA A GA 2100 ^310 2160 v370 331a P. sylvestris 2 ngc Gc C AAAATT 1: 1	A3 GAAGT ATT	TATATCCA ^240 v31 T AT TGT I II III T AT TGT	^25	26 ^26	0 ^270 330 GG GA C C Li li li li GG GA C C	v340 ATT CC C	0 ^290 V350 : CAA CAAGAG
CA 3C C AGGA A GA 7160 **310 7160 **370 GG1a P. sylvestris ** TGC GC C AAAATT	A3 GAAGT ATT ^220 ^320 V300 V380 A ATT TTG TT A AC	TATATCCA ^240 v31 T AT TGT I II II T AT TGT TTTTT A 330	^25 .0 vi rgaTg TAG [, Ul rgaTg TAG AC	260 ^26 320 V C C CC A T C T T T T T T T T T T T T T T T T T T	0 ^270 330 GG GA C C Li li i i GG GA C C ^360	^28 v340 ATT CC C LII I I ATT CC	0 ^290 V350 CAA CAAGAG
CA 3C C AGGA A GA 200 **310 200 **370 301a P. sylvestris 1 mgc GC C AAAATT	A3 GAAGT ATT ^220 ^320 V300 V380 A ATT TTG TT A AC	TATATCCA ^240 v31 T AT TGT I II II T AT TGT TTTTT A 330	^25 .0 vi rgaTg TAG [, Ul rgaTg TAG AC	260 ^26 320 V C C CC A T C T T T T T T T T T T T T T T T T T T	0 ^270 330 GG GA C C Li li li li GG GA C C	^28 v340 ATT CC C LII I I ATT CC	0 ^290 V350 CAA CAAGAG
CA 3C C AGGA A GA TIOO ^310 TIGO V370 SG1a P. sylvestris TIGO GC C AAAATT TILL T TILL T CA763 GS3A P. sativu C CAA CAAGAG C T	A3 GAAGT ATT	TATATCCA ^240 v31 T AT TGT T AT TGT TTTT A 330 v390	^25 .0 vi rgatg tac [, !! rgatg tac AC	260 ^26 320 V C C CC A T C C CC A T 7350	0 ^270 330 GG GA C C H H H H H GG GA C C ^360 v420	^28 v340 ATT CC C ATT CC ^370 v430	v350 : CAA CAAGAG
CA 3C C AGGA A GA 100 ^310 7160	A3 GAAGT ATT	TATATCCA ^240 V31 T AT TGT I II III T AT TGT TTTT A 330 V390 TT G T	^25 .0 vi rGATG TAG [, !! rGATG TAG AC	260 ^26 320 V C C CC A T C C CC A T ^350 V411 AC ATGGTA	0 ^270 330 GG GA C C 1	v340 ATT CC C III II I ATT CC ^370 v430	0 1290 V350 CAA CAAGAG (11) [11] [1] 0 1380 V440
CA 3C C AGGA A GA TIOO ^310 TIGO V370 SG1a P. sylvestris TIGO GC C AAAATT TILL T TILL T CA763 GS3A P. sativu C CAA CAAGAG C T	A3 GAAGT ATT	TATATCCA ^240 V31 T AT TGT I II III T AT TGT TTTT A 330 V390 TT G T	^25 .0 vi rGATG TAG [, !! rGATG TAG AC	260 ^26 320 V C C CC A T C C CC A T ^350 V411 AC ATGGTA	0 ^270 330 GG GA C C 1	v340 ATT CC C III II I ATT CC ^370 v430	0 1290 V350 CAA CAAGAG (11) [11] [1] 0 1380 V440
CA 3C C AGGA A GA 200	AG GAAGT ATT ^220 ^320 V300 V380 A ATT TTG TT A AC	TATATCA ^240 v31 T AT TGT I II II T AT TGT TAT TGT	^25 .0 vi rGATG TAC .1 rGATG TAC .2 AC .340 .430 .430 .740 .750 .750 .750 .750 .750 .750 .750 .75	260 ^26 320 V C C CC A T C C CC A T ^350 V411 AC ATGGTA	0 ^270 330 GG GA C C H H H H H GG GA C C ^360 v420	v340 ATT CC C III II I ATT CC ^370 v430	0 ^290 V350 CAA CAAGAG (14) [41]
CA 3C C AGGA A GA 200 ^310 200	AG GAAGT ATT ^220 ^320 V300 V380 A ATT TTG TT A AC II' A ATT TTG GC GC C AAAA ^4410 V470 GA G CT GG TGGCC A	TATATCA ^240 v31 T AT TGT I II II T AT TGT TTTT A 330 v390 TT G T	^25 .0 vi rgatg tac [, !! rgatg tac AC	20 ^26 20 V C C CC A T C C CC A T A350 V411 AC ATGGT/A	0	v340 ATT CC C ATT CC ^370 v430 AAGA TATAC	v350 CAA CAAGAG CAA CAAGAG A380 v440 CCT TT CA
CA 3C C AGGA A GA 100 ^310 7160 V370 3G1a P. sylvestris 1 mgc GC C AAAATT 1	A3 GAAGT ATT ^220 ^320 V300 V380 A ATT TTG TT A AC m" A ATT TTG GC GC C AAAA ^4410 V470 GA G CT GG TGGCC A cm" GA G CCAAGA TATAC C	TATATCA ^240 v31 T AT TGT I II II T AT TGT TTTT A 330 v390 TT G T	^25 .0 vi rgatg tac [, !! rgatg tac AC	20 ^26 20 V C C CC A T C C CC A T A350 V411 AC ATGGT/A	0	v340 ATT CC C ATT CC ^370 v430 AAGA TATAC	v350 CAA CAAGAG CAA CAAGAG A380 v440 CCT TT CA
CA 3C C AGGA A GA 100 ^310 7160 V370 3G1a P. sylvestris 1 mgc GC C AAAATT 1	A3 GAAGT ATT ^220 ^320 V300 V380 A ATT TTG TT A AC m" A ATT TTG GC GC C AAAA ^4410 V470 GA G CT GG TGGCC A cm" GA G CCAAGA TATAC C	TATATCA ^240 v31 T AT TGT I II II T AT TGT TTTT A 330 v390 TT G T	^25 .0 vi rgatg tac [, !! rgatg tac AC	20 ^26 20 V C C CC A T C C CC A T A350 V411 AC ATGGT/A	0	v340 ATT CC C ATT CC ^370 v430 AAGA TATAC	0 ^290 V350 CAA CAAGAG (14) [41]
CA 3C C AGGA A GA 200 ^310 200	AG GAAGT ATT ^220 ^320 V300 V380 A ATT TTG TT A AC m" A ATT TTG GC GC C AAAA ^1410 V470 GA G CT GG TGGCC A cm" GA G GCAAGA TATAC C	TATATCA A240 v31 T AT TGT T AT TGT TAT TGT TAT TGT TAT TGT TT G T TT G T	^25 DO VI DOGATO TAC PGATO TAC AC AC A340 V400 TG TGAAG AAAG AC I	20 ^26 20 V C C CC A T C C CC A T ^350 V411 AC ATGGTA CAA TGGCC C	0	^28 v340 ATT CC C 111 41 1 1 ATT CC	v350 CAA CAAGAG CAA CAAGAG A380 v440 CCT TT CA

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